

What is claimed is:

1. A separator tank assembly comprising:
a cast hollow tank having a closed end and an open end with a separator chamber therebetween;
a cast lid substantially closing the tank open end; and
a first integral fluid passage formed in the cast hollow tank and cast lid and extending from the separator chamber to at least one external port.
2. The separator tank assembly of claim 1 wherein the first integral fluid passage is a compressed air passage and wherein at least a first integral port is formed along the first integral fluid passage between the separator chamber and the external port.
3. The separator tank assembly of claim 2 wherein the first integral port is configured to receive a separator element.
4. The separator tank assembly of claim 3 wherein the first integral port has a first integral separator passage extending from the first integral fluid passage to the separator element and a second integral separator passage extending from the separator element to the first integral fluid passage such that compressed air travels from the separator chamber, through the first integral fluid passage, through the first separator passage, through the separator element, through the second separator passage and through the first integral fluid passage to the external port.
5. The separator tank assembly of claim 4 wherein the first integral port further comprises a lubrication reservoir adjacent the second separator passage, the reservoir configured to receive lubricant separated by the separator element.
6. The separator tank assembly of claim 5 wherein an integral scavenge passage extends between the reservoir and an external scavenge port.
7. The separator tank assembly of claim 3 wherein the cast tank has a separator element mounting surface formed integral therewith about the first integral port.

8. The separator tank assembly of claim 3 further comprising a second integral port formed along the first integral fluid passage between the first integral port and the external port.

9. The separator tank assembly of claim 8 wherein the second integral port is configured to receive a minimum pressure check valve which prevents passage of the compressed air through the first integral fluid passage to the external port unless an air pressure within the separator chamber is above a predetermined level.

10. The separator tank assembly of claim 8 wherein the first integral port is formed integrally with the cast tank and the second integral port is formed integrally with the cast lid.

11. The separator tank assembly of claim 2 wherein the first integral port is configured to receive a minimum pressure check valve which prevents passage of the compressed air through the first integral fluid passage to the external port unless an air pressure within the separator chamber is above a predetermined level.

12. The separator tank assembly of claim 2 wherein the external port is configured for providing compressed air to an external component.

13. The separator tank assembly of claim 1 wherein the first integral fluid passage is a lubricant passage and wherein at least a first integral port is formed along the first integral fluid passage between the separator chamber and the external port.

14. The separator tank assembly of claim 13 wherein the first integral port is configured to receive a thermal valve assembly.

15. The separator tank assembly of claim 14 further comprising a second integral port formed along the first integral fluid passage between the first integral port and the external port.

16. The separator tank assembly of claim 15 wherein the second integral port is configured to receive a lubricant filter.

17. The separator tank assembly of claim 16 wherein the thermal valve assembly is configured to direct flow of lubricant either directly to the second integral port or through a secondary passage associated with a cooler prior to flow to the second integral port.

18. The separator tank assembly of claim 16 wherein the first and second integral ports are formed integrally with the cast lid.

19. The separator tank assembly of claim 13 wherein the first integral port is configured to receive a lubricant filter.

20. The separator tank assembly of claim 19 wherein the first integral port has a first integral filter passage extending from the first integral fluid passage to the lubricant filter and a second integral filter passage extending from the lubricant filter to the first integral fluid passage such that lubricant travels from the separator chamber, through the first integral fluid passage, through the first filter passage, through the lubricant filter, through the second filter passage and through the first integral fluid passage to the external port.

21. The separator tank assembly of claim 20 wherein the external port is configured for returning cleaned lubricant to an associated compressor assembly.

22. The separator tank assembly of claim 13 wherein a second integral fluid passage extends between the separator chamber and a second integral port configured to receive a sight glass.

23. A separator tank assembly comprising:
a cast hollow tank having a closed end and an open end with a separator chamber therebetween;
a cast lid substantially closing the tank open end;
a first integral fluid passage formed in the cast hollow tank and cast lid and extending from the separator chamber to a first external port configured for providing compressed air to an external component; and

a second integral fluid passage formed in the cast hollow tank and cast lid and extending from the separator chamber to a second external port configured for returning cleaned lubricant to an associated compressor assembly.

24. The separator tank assembly of claim 23 wherein at least a first integral port is formed along the first integral fluid passage between the separator chamber and the first external port.

25. The separator tank assembly of claim 24 wherein the first integral port is configured to receive a separator element.

26. The separator tank assembly of claim 25 wherein the first integral port has a first integral separator passage extending from the first integral fluid passage to the separator element and a second integral separator passage extending from the separator element to the first integral fluid passage such that compressed air travels from the separator chamber, through the first integral fluid passage, through the first separator passage, through the separator element, through the second separator passage and through the first integral fluid passage to the first external port.

27. The separator tank assembly of claim 26 wherein the first integral port further comprises a lubrication reservoir adjacent the second separator passage, the reservoir configured to receive lubricant separated by the separator element.

28. The separator tank assembly of claim 27 wherein an integral scavenge passage extends between the reservoir and an external scavenge port.

29. The separator tank assembly of claim 25 wherein the cast tank has a separator element mounting surface formed integral therewith about the first integral port.

30. The separator tank assembly of claim 25 further comprising a second integral port formed along the first integral fluid passage between the first integral port and the first external port.

31. The separator tank assembly of claim 30 wherein the second integral port is configured to receive a minimum pressure check valve which prevents passage of the compressed air through the first integral fluid passage to the first external port unless an air pressure within the separator chamber is above a predetermined level.

32. The separator tank assembly of claim 30 wherein the first integral port is formed integrally with the cast tank and the second integral port is formed integrally with the cast lid.

33. The separator tank assembly of claim 24 wherein the first integral port is configured to receive a minimum pressure check valve which prevents passage of the compressed air through the first integral fluid passage to the first external port unless an air pressure within the separator chamber is above a predetermined level.

34. The separator tank assembly of claim 23 wherein a third integral port is formed along the second integral fluid passage between the separator chamber and the second external port.

35. The separator tank assembly of claim 34 wherein the third integral port is configured to receive a thermal valve assembly.

36. The separator tank assembly of claim 35 further comprising a fourth integral port formed along the second integral fluid passage between the third integral port and the second external port.

37. The separator tank assembly of claim 36 wherein the fourth integral port is configured to receive a lubricant filter.

38. The separator tank assembly of claim 37 wherein the thermal valve assembly is configured to direct flow of lubricant either directly to the fourth integral port or through a secondary passage associated with a cooler prior to flow to the fourth integral port.

39. The separator tank assembly of claim 37 wherein the third and fourth integral ports are formed integrally with the cast lid.

40. The separator tank assembly of claim 34 wherein the third integral port is configured to receive a lubricant filter.

41. The separator tank assembly of claim 40 wherein the third integral port has a first integral filter passage extending from the second integral fluid passage to the lubricant filter and a second integral filter passage extending from the lubricant filter to the second integral fluid passage such that lubricant travels from the separator chamber, through the second integral fluid passage, through the first filter passage, through the lubricant filter, through the second filter passage and through the second integral fluid passage to the second external port.

42. The separator tank assembly of claim 23 wherein a third integral fluid passage extends between the separator chamber and a fifth integral port configured to receive a sight glass.